

Application Serial No. 09/746,068

REMARKS**INTRODUCTION**

In accordance with the foregoing, claims 1 and 9 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-19 are pending and under consideration. Reconsideration is respectfully requested.

ALLOWABLE SUBJECT MATTER

In the outstanding Final Office Action at page 2, claims 17-19 have been indicated as allowable. At pages 11-12, the Examiner has indicated that claims 3, 4, and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

REJECTION UNDER 35 U.S.C. §103

In the Office Action at pages 2-5, claims 1, 2, 6, and 7 were rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent No. 4,395,758 to Helenius in view of U.S. Patent No. 3,631,405 to Hoff. The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

Independent claim 1 is directed to an information-processing device that executes a specific process more frequently than other processes among a variety of processes. In relevant part, the information-processing device of amended independent claim includes "a first processor, having a single program counter, configured to execute an instruction set corresponding to the variety of processes" and "a second processor configured to execute a portion or entirety of the same instruction set that said first processor executes, said second processor including a plurality of program counters for executing a plurality of processes simultaneously so as to be capable of executing a part of said instruction set corresponding to the specific process more efficiently than said first processor." Support for this amendment can be found in the originally filed Specification at page 13, lines 3-37. Independent claim 9 has been similarly amended.

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Thus, according to the present invention, a first processor has a single program counter, and a second processor includes a plurality of program counters for executing a plurality of processes simultaneously so as to be capable of executing a part of the instruction set corresponding to the specific process more efficiently than the first processor. As only the second processor has a plurality of program counters, the second processor can perform transaction processes more efficiently than the first processor, which has only a single program counter. In a non-limiting example, the first processor is a general purpose processor which may take care of processes that are not suitable for execution by the second processor. As a result, high performance can be achieved at a low cost.

Helenius teaches that a central processor executes a series of instructions, and a special processor executes an instruction that appears in the series of instructions. Applicant respectfully submits that Helenius fails to teach or suggest providing a single program counter for a first processor and a plurality of program counters for a second processor, as recited in amended independent claims 1 and 9.

Hoff teaches that a word processor 10 operates with respect to a fixed-length data field, and a character processor 12 operates with respect to a variable-length data field. Applicant respectfully submits that Hoff fails to teach or suggest providing a single program counter for a first processor and a plurality of program counters for a second processor, as recited in amended independent claims 1 and 9.

Accordingly, Helenius and Hoff fail to teach or suggest providing a single program counter for a first processor and a plurality of program counters for a second processor, as recited in the amended independent claims. Applicant respectfully submits that Helenius and Hoff, taken alone or in combination, fail to teach or suggest all of the features of amended independent claim 1, and those claims depending directly or indirectly therefrom. For at least this reason, Applicant respectfully submits that amended independent claim 1 and claims 2-8, which depend directly or indirectly therefrom, patentably distinguish over the prior art and are in condition for allowance.

In the Office Action at pages 5-11, claims 5, 8-11, and 13-16 were rejected under 35 U.S.C. §103 as being unpatentable over Helenius in view of Hoff and further in view of Hennessy. The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

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Claims 5 and 8 depend from amended independent claim 1. As the rejection of claims 5 and 8 fails to cure the deficiencies of Helenius and Hoff noted above, Applicant respectfully submit that Helenius, Hoff, and Hennessy, taken alone or in combination, fail to teach or suggest all of the features of dependent claims 5 and 8. Accordingly, Applicant respectfully submits that claims 5 and 8 patentably distinguish over the prior art and are in condition for allowance.

Independent claim 9 has been amended in a manner similar to independent claim 1 and now recites "a first processor, having a single program counter, configured to execute an entire instruction set and designed to execute variety of processes" and "a second processor configured to execute a portion or entirety of the same instruction set that the second processor executes, said second processor including a plurality of program counters for executing multiples of the variety of processes concurrently so as to achieve more efficient execution than said first processor."

As discussed with respect to amended independent claim 1, above, neither Helenius nor Hoff teaches or suggests a "first processor, having a single program counter" and a "second processor including a plurality of program counters." Applicant respectfully submits that Hennessy also fails to teach or suggest these features.

Hennessy is relied upon to teach parallel processing, and the Examiner asserts that it would have been obvious to modify the design of Helenius "to make the first and second processors multiprocessors as taught by Hennessy." Final Office Action at page 6, numbered item 16. Applicant respectfully disagrees.

According to the present invention, parallel processing is applied to only the second processor. Parallel processing is not applied to the first processor. If Helenius were modified according to the teachings of Hennessy, parallel processing would be applied to both the first processor and the second processor. Thus, parallel processing would not be applied to only the second processor, as in the present invention.

Further, as noted above, the special processor (second processor) of Helenius executes an instruction appearing in the series of instructions executed by a central processor (first processor). If these teachings of Helenius were modified so that the central processor (first processor) performs parallel processing to execute multiple processes, the special processor (second processor) would also have to perform parallel processing to execute the instructions on behalf of the first processor, else the operation of Helenius would be substantially altered.

For at least these reasons, Applicant respectfully submits that Helenius, Hoff, and Hennessy, taken alone or in combination, fail to teach or suggest all of the features of amended independent claim 9 and those claims depending directly or indirectly therefrom. As Hennessy fails to cure the deficiencies of Helenius and Hoff, Applicant respectfully submits that claims 9-16 patentably distinguish over the prior art and are in condition for allowance.

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CONCLUSION

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot. And further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited by the Examiner contacting the undersigned attorney for a telephone interview to discuss resolution of such issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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